<center>**REMARKS/ARGUMENTS**</center>

Claims 1, 4-11, 13-14, and 17-24 are pending in the present application. Applicants have amended claims 1, 4, 13, 14, and 17-22 and cancelled claims 2-3, 12, and 15-16 from further consideration in this application. Applicants are not conceding in this application that those claims are not patentable over the art cited by the Examiner, as the present claim amendments and cancellations are only for facilitating expeditious issuance of the application. Applicants respectfully reserve the right to pursue these and other claims in one or more continuations and/or divisional patent applications. By this response, independent claims 1, 13, and 14 are amended to include the content of canceled claims 2-3 and 15-16. Claims 1, 13, and 14 are further amended to clarify the claims. Support for the amendments to claims 1, 13, and 14 is located at least on page 3, lines 13-15; on page 9, lines 1-7; on page 19, lines 1-24; on page 31, lines 13-26; in **step 1210**; and in **Figure 6**. Claims 4 and 17 are amended to change their dependency to claims 1 and 14, respectively. Claims 13, 14, and 17-22 are amended to overcome rejections under 35 U.S.C. § 101. Reconsideration of the claims is respectfully requested.

I.   Interview Summary

Applicants thank Examiners Meng Yao Zhe and Joseph Del Sole for the courtesies extended to Applicants' representatives during the May 14, 2007 and June 12, 2007 telephone interviews. During the interviews, Applicants' representatives discussed the distinctions between the present application and the *Eilam et al.* and *Baker et al.* references. During the June 12th interview, Applicants discussed the distinctions with respect to time slots and allocating thinking time into separate thinking time partitions within each time slot. The Examiners stated that they could see differences between the present application and the cited references. The Examiners will examine the amended claims more closely and conduct an additional search before making any formal decisions. The substance of the telephone interview is included in the following remarks.

II.   35 U.S.C. § 101

The Examiner has rejected claim 13 under 35 U.S.C. § 101 as being directed towards non-statutory subject matter. This rejection is respectfully traversed.

The Office Action states that claim 13 lacks necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 U.S.C. § 101. Claim 13 is amended to clarify that the apparatus comprises a processor running a scheduler as indicated by the Examiner during the June 12th interview. Applicants respectfully submit that the amendments to claim 13 overcome this rejection under 35 U.S.C. § 101.

III.   35 U.S.C. § 102, Anticipation Based on Eilam

The Examiner has rejected claims 1-3, 13, and 14 under 35 U.S.C. § 102(e) as being anticipated by *Eilam et al.*, Application Publication Number US 2004/0111509, 6/10/2004, hereinafter referred to as *Eilam*. This rejection is respectfully traversed.

Claims 2-3 and 15-16 are canceled and their content is included in independent claims 1, 13, and 14, respectively. With respect to the rejection of claims 1-3, 13, and 14, the Office Action states:

> As per **claim 1**, Eilam teaches **a method, in a data processing system, for resource allocation of a plurality of tasks carrying penalties based on their completion time, the method comprising:**
> > **assigning the plurality tasks to one or more resources;** (Abstract: servers has to be optimally allocated to customers. Here, the servers are resources, and customers' requests are tasks.)
> > **and assigning start times for the plurality of tasks such that expected penalties for completion times of the plurality of tasks are minimized.** (Paragraph 27, and 33: The scheduler runs an optimization program that predicts the future workload and traffic in order to best assign resources to the current request at a best time slot. If not enough resources are assigned in a particular time window, penalty results.)
> As per **claim 2**, Eilam teaches
> > **Claim 2: Wherein expected penalties are minimized by continually assigning tasks and start times based on predictable potential next events.** (Paragraphs 21, 27, 32, 33 and 87: The system disclose by Eilam has a STF and LTF that predict future events, traffic and loads, and schedules current task based on predicted next events.)
> As per **Claim 3**, Eilam teaches
> > **Allocating thinking time into separate thinking time partitions for predictable potential next events;** (Paragraph 33: The resource manager described by Eilam is responsible for making allocation decisions in real time based on continued monitoring of the work flow. The algorithm takes time to run, and this is considered as thinking time. Whenever a new request comes in from the customer, the resource manager has to make this decision. Therefore, the thinking time is partitioned.)
> > **during each allocated thinking time partition, allocating resources for a predicted next event at a predicted time at which the predicted next event may occur;** (Paragraph 33)
> > **and assigning resources for queued tasks based upon an actual next event and an actual time of occurrence.** (Paragraph 50, 54, and 60: The workload is predicted at each time slot t. Therefore, resources are assigned by resource manager according to the algorithm disclosed by Eilam.)
> As per **claim 13**, it is an apparatus that contains all the components that are capable of performing the method steps of claim 1. Because claim 1 is rejected, claim 13 is rejected as well.
> As per **claim 14**, it is a computer readable medium that contains all the instructions that are capable of performing the method steps of claim 1. Because claim 1 is rejected, claim 14 is rejected as well.

Office Action dated April 17, 2007, pages 4-5.

As amended, claim 1, which is representative of the other rejected independent claims 13 and 14 with regard to similarly recited subject matter, reads as follows:

1.   A method, in a data processing system, for resource allocation of a plurality of tasks carrying penalties based on their completion time, the method comprising:
        assigning the plurality tasks to one or more resources;
        assigning start times for the plurality of tasks such that expected penalties for completion times of the plurality of tasks are minimized, wherein expected penalties are minimized by continually assigning tasks and start times based on predictable potential next events;
        allocating thinking time into separate thinking time partitions within each time slot for each problem instance of a plurality of the predictable potential next events, wherein an optimal amount of think time is calculated for each problem instance of the plurality of the predictable potential next events;
        during each allocated thinking time partition, allocating resources for a predicted next event at a predicted time at which the predicted next event may occur; and
        assigning resources for queued tasks based upon an actual next event and an actual time of occurrence. (emphasis added)

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). Anticipation focuses on whether a claim reads on the product or process a prior art reference discloses, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). Applicant respectfully submits that *Eilam* does not identically show every element of the claimed invention arranged as they are in the claims. Specifically, *Eilam* does not teach or suggest "allocating thinking time into separate thinking time partitions within each time slot for each problem instance of a plurality of the predictable potential next events, wherein an optimal amount of think time is calculated for each problem instance of the plurality of the predictable potential next events," as recited in claims 1, 13, and 14.

Eilam is directed to a method and structure for dynamic allocation of servers to customers in a server farm. The invention creates a resource allocation plan based on a long term forecast for the server farm, taking into account traffic, number of servers, customers' contracts and revenue optimization algorithms. The plan is then modified as indicated by short term forecasting using currently monitored load metrics to reallocate to maximize revenue for particular time periods. *Eilam* does not teach or suggest "allocating thinking time into separate thinking time partitions within each time slot for each problem instance of a plurality of the predictable potential next events, wherein an optimal amount of think time is calculated for each problem instance of the plurality of the predictable potential next events," as recited in claims 1, 13, and 14.

With respect to the rejection of amended claims 1, 13, and 14, the Examiner refers to the following portion of *Eilam*:

> [0033] A Resource Manager (RM) is responsible for making allocation decisions in real time based on the RAP and the monitored workload. The Resource Manager uses a Resource Control Algorithm (RCA) and a Short-Term Forecasting Module (STFM) with a forecasting horizon (e.g., hours or minutes) which is shorter than that of the LTFM. The role of STFM is to generate, based on monitored metrics, threshold alerts if the current load is different from what was anticipated by the LTFM. The RM refines the RAP-based assignment of servers according to these alerts using a simple and efficient greedy algorithm suitable for real-time usage. Thus the RPDSF system does not compromise flexibility in adjustment to any workload state while the system has the benefits of planning and learning, taking advantage of persistent traffic patterns (e.g., "seasonality") and the optimization algorithms.
>
> [0050] The <u>process flow of FIG. 3 operates in iterations whereby the 24-hour time frame is divided into consecutive time slots. The length of the time slot is a parameter which is determined based depends on how frequently it will be worthwhile to adjust the allocation</u>. For simplicity, <u>it will be assumed that a time slot is one hour</u>. In every iteration, the best allocation is determined for the next time slot by executing the following steps. First, FORECAST$_i$ for customer i and MLISLA$_i$ for customer i, are input at 301 and 303. Next, at 305, an expected revenue function (ERF$_{i,t}$) is constructed for every customer i. Next, the set ERF.sub.i,t, for every customer i, is used in order to find the optimal allocation for time slot t at step 307. The RAP.sub.i,t is the content of one row, row t, in the RAP table.
>
> [0054] FORECAST.sub.i,t--Forecasted probability distribution of the load Mt.sub.i for customer i at time slot t. Namely FORECAST.sub.i,t(x) is the probability that the load Mt will be at least x. (emphasis added)

Eilam, paragraphs [0033], [0050], and [0054].

These portions of *Eilam* state that *Eilam's* time slot is a specified length of time, such as one hour of a 24-hour time frame. *Eilam's* time slot is the frequency at which the resources allocations are made or adjusted. *Eilam* does not teach or suggest "allocating thinking time into separate thinking time partitions within each time slot for each problem instance of a plurality of the predictable potential next events, wherein an optimal amount of think time is calculated for each problem instance of the plurality of the predictable potential next events," as recited in claims 1, 13, and 14. The time slot and thinking time allocation of the present invention is used in a more intelligent method that improves the schedule for resource allocation.

In view of the above, Applicants respectfully submit that *Eilam* does not teach or suggest each and every feature of claims 1, 13, and 14, as is required under 35 U.S.C § 102(e). Claims 2-3 are canceled. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 1-3, 13, and 14 under 35 U.S.C § 102(e).

IV.   **35 U.S.C. § 103, Obviousness**

The Examiner has rejected claims 4-11, 12, and 15-24 under 35 U.S.C. § 103(a) as being unpatentable over *Eilam* in view of *Baker at al.*, Application Publication Number US 2005/0065826, 3/24/2005, hereinafter referred to as *Baker*. This rejection is respectfully traversed.

Since claims 4-11 and 17-24 depend from independent claims 1 and 14, respectively, the same distinctions between *Eilam* and the invention recited in amended claims 1 and 14 apply to dependent claims 4-11 and 17-24. In addition, *Baker* does not provide for the deficiencies of *Eilam* with regard to independent claims 1 and 14. *Baker* is directed to a system and process for job scheduling to minimize construction costs. *Baker* does not teach or suggest "allocating thinking time into separate thinking time partitions within each time slot for each problem instance of a plurality of the predictable potential next events, wherein an optimal amount of think time is calculated for each problem instance of the plurality of the predictable potential next events," as recited in amended claims 1 and 14. Thus, any alleged combination of *Eilam* with *Baker* still would not result in the invention recited in claims 1 and 14 from which claims 4-11 and 17-24 depend. Claims 12 and 15-16 are canceled. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 4-11, 12, and 15-24 under 35 U.S.C. §103(a).

V.   Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,

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